

IN THE CLAIMS

1. (Currently amended) A method of multicasting a data file, comprising:
transmitting a notification on an upcoming multicast transmission to a plurality of receivers designated to receive the multicast transmission;
transmitting a data file, from a data server, on the one or more multicast channels, without the data server receiving acknowledgements from the receivers on whether they received the notification on the upcoming multicast transmission;
determining, by the data server, receivers designated to receive the multicast transmission that did not receive at least a portion of the data file;
determining, by the data server, at least one of the plurality of the receivers that received at least a portion of the data file; and
attempting, by the data server, to deliver the data file to the receivers determined not to have received at least a portion of the data file.
2. (Original) A method according to claim 1, wherein transmitting the notification comprises transmitting on a multicast or broadcast channel.
3. (Currently amended) A method according to claim 1, wherein transmitting the notification comprises transmitting a unicast notification to each of the ~~receivers on the~~ designated receivers.
4. (Original) A method according to claim 1, wherein transmitting the notification comprises transmitting substantially only to designated receivers.
5. (Original) A method according to claim 1, wherein transmitting the notification comprises transmitting a message open also to non-designated receivers.
6. (Original) A method according to claim 1, wherein the notification indicates the one or more channels on which the multicast transmission will be provided.

7. (Previously presented) A method according to claim 1, comprising determining by each receiver that receives the notification whether to tune onto the one or more multicast channels.
8. (Original) A method according to claim 7, wherein determining by each receiver that receives the notification whether to tune onto the one or more multicast channels comprises determining, from the notification, a group to which the upcoming multicast transmission belongs and determining whether to tune onto the one or more multicast channels according to the determined group.
9. (Cancelled)
10. (Original) A method according to claim 7, wherein determining by each receiver that receives the notification whether to tune onto the one or more multicast channels comprises determining based on input received from a user responsive to the notification.
11. (Previously presented) A method according to claim 1, wherein the receivers do not transmit acknowledgements of reception of the notification, at all.
12. (Previously presented) A method according to claim 1, wherein the receivers cannot transmit uplink messages to the data server, without stopping to listen to the one or more multicast channels.
13. (Previously presented) A method according to claim 1, wherein attempting to deliver the data file comprises delivering the data file in a unicast transmission to each of the receivers determined not to have received at least a portion of the data file.
14. (Previously presented) A method according to claim 1, wherein attempting to deliver the data file comprises delivering the data file in a multicast transmission to a plurality of the determined receivers.

15. (Previously presented) A method according to claim 1, wherein attempting to deliver the data file comprises providing a notification message inviting the receivers to download the transmission on a unicast connection, to the determined receivers.
16. (Previously presented) A method according to claim 1, wherein at least 80% of the designated receivers establish only a single unicast connection related to receiving the data file.
17. (Original) A method according to claim 16, wherein substantially all of the designated receivers establish only a single unicast connection related to receiving the data file.
18. (Original) A method according to claim 16, wherein substantially all of the designated receivers establish up to two single unicast connections related to receiving the data file.
19. (Previously presented) A method according to claim 1, wherein at least a portion of the data file is encrypted, requiring one or more decryption keys identified in the transmitted data file.
20. (Original) A method according to claim 19, wherein the receivers request the one or more keys after receiving the data file.
21. (Original) A method according to claim 19, wherein at least one of the receivers requests the one or more keys after receiving the data file and at least one of the receivers is provided with one or more of the keys before the transmission.
22. (Original) A method according to claim 19, wherein the receivers request the one or more keys after determining that they received sufficient data to allow reconstruction of the data file.
23. (Original) A method according to claim 19, wherein the keys are received on a single unicast connection along with any supplementary data required, not received during the multicast transmission.

24. (Previously presented) A method according to claim 1, comprising receiving acknowledgements from receivers that received the notification or at least a portion of the data file, after transmitting the data file, wherein determining receivers designated that did not receive at least a portion of the data file is performed by determining receivers from which acknowledgments were not received.

25. (Original) A method according to claim 24, wherein receiving the acknowledgements comprises receiving a request for decryption keys.

26. (Original) A method according to claim 24, wherein receiving the acknowledgements comprises receiving a request for supplementary data not received during the multicast transmission.

27. (Previously presented) A method according to claim 24, wherein receiving the acknowledgements comprises receiving over a different network than the network on which the data file was multicast.

28-32. (Cancelled)

33. (Previously presented) A method according to claim 1, wherein attempting to deliver the data file to the determined receivers comprises delivering on a different network than the network on which the data file was multicast.

34. (Previously presented) A method according to claim 1, wherein the notification indicates a plurality of categories to which the data file relates and the plurality of receivers comprises receivers designated to receive data belonging to different ones of the plurality of categories.

35. (Previously presented) A method according to claim 1, wherein transmitting the data file comprises transmitting a plurality of sub-files in a plurality of separate transmission sessions

36. (Previously presented) A method according to claim 1, wherein transmitting the data file comprises transmitting a plurality sub-files on a plurality of different channels.

37. (Previously presented) A method of receiving a data file provided in a multicast transmission, comprising:

tuning, by a mobile station, onto a multicast channel;

receiving at least one encrypted packet which can be used in reconstructing the data file, on the multicast channel; and

receiving at least one key required for decrypting the at least one packet after receiving a sufficient number of packets for reconstructing the data file.

38-40. (cancelled)

41. (Original) A method according to claim 37, comprising requesting the at least one key after receiving a sufficient number of packets for reconstructing the data file and wherein receiving the at least one key is performed responsive to the requesting.

42. (Previously presented) A method according to claim 41, wherein the requesting of the at least one key is performed responsive to a user instruction.

43. (Previously presented) A method according to claim 42, wherein at least a portion of the data file is not encrypted and the user instruction is received after displaying the non-encrypted portion of the file to the user.

44. (cancelled)

45. (Previously presented) A method according to claim 43, wherein the non-encrypted portion of the file is received before any encrypted portion of the data file.

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46-47. (cancelled)

48. (Previously presented) A method according to claim 37, wherein the file includes a plurality of different portions requiring different keys for decryption and wherein the keys required for at least one portion are received after displaying at least one other portion.

49-50. (cancelled)

51. (Original) A method according to claim 37, wherein tuning onto the multicast channel is performed responsive to receiving a notification on an upcoming multicast transmission and responsive to a determination that the upcoming multicast transmission matches a subscription profile of the receiver.

52. (Original) A method according to claim 51, wherein the determination that the upcoming multicast transmission matches a subscription profile of the receiver comprises consulting a multicast subscription profile stored on the receiver.

53-54. (cancelled)

55. (Original) A method according to claim 37, comprising acknowledging receipt of the at least one key, in a manner which allows charging for the data file.

56. (Original) A method of multicasting a file, comprising:
 encrypting the file using one or more keys;
 transmitting the encrypted file to a plurality of receivers in a multicast transmission; and
 providing at least one of the plurality of receivers with one or more decryption keys required for decrypting the transmitted encrypted file, after the file was transmitted.

57. (Original) A method according to claim 56, comprising providing at least one of the receivers with at least one decryption key for the encrypted file, before transmitting the encrypted file.

58. (Original) A method according to claim 57, comprising receiving from the at least one receivers provided with the decryption keys before transmitting the encrypted file, acknowledgement messages.

59. (Original) A method according to claim 58, wherein the acknowledgement messages are received at least 10 minutes after the transmission of the encrypted file is completed.

60. (Original) A method according to claim 57, wherein the at least one of the receivers provided with the decryption keys before transmitting the encrypted file are selected at least partially responsive to previous behavior of the receivers.

61. (cancelled)

62. (Previously presented) A method according to claim 57, wherein the at least one of the receivers provided with the decryption keys before transmitting the encrypted file are selected at least partially responsive to the number or percentage of acknowledgements provided by the receivers in a given period.

63-65. (cancelled)

66. (Previously presented) A method of transmitting multicast data, comprising:
providing a data file for transmission;
estimating one or more transmission parameter values required to achieve, on the average, a reception rate which allows less than 100% of the receivers to which the multicast data is directed to reconstruct the data file from the multicast transmission;

transmitting the multicast data representing the data file on a multicast channel, using the one or more estimated parameter values; and

providing at least supplementary portions of the data to receivers that were not able to reconstruct the data file in its entirety from the multicast data transmitted on the multicast channel.

67. (Original) A method according to claim 66, wherein providing at least supplementary portions comprises transmitting the supplementary portions over a unicast connection.

68. (Original) A method according to claim 66, wherein the one or more transmission parameters comprise a transmission power level.

69. (Original) A method according to claim 66, wherein the one or more transmission parameters comprise a FEC redundancy level.

70. (Original) A method according to claim 66, wherein estimating the one or more transmission parameter values comprises estimating based on general network data without relation to specific conditions of a current transmission.

71. (Original) A method according to claim 66, wherein estimating the one or more transmission parameter values comprises estimating based on specific conditions of a current transmission.

72. (Original) A method according to claim 71, wherein estimating the one or more transmission parameter values comprises estimating based on the number of receivers.

73. (Original) A method according to claim 66, wherein the multicast channel comprises a data channel of a cellular network.

74-78. (Cancelled)

79. (Previously presented) A method of transmitting multicast data in a cellular network, comprising:

providing data for multicast transmission to a plurality of base stations having different bandwidth amounts for multicast transmission, at a same rate;

dropping data by one or more of the base stations, as required, so that the data can be transmitted by each of the base stations on its respective allocated bandwidth for multicast transmission; and

transmitting the non-dropped data such that the data is transmitted by all the base stations substantially synchronously.

80. (Previously presented) A method according to claim 79, wherein the base stations use a small buffer, having room for at most five packets, for the provided multicast data.

81. (Original) A method according to claim 79, wherein providing the data comprises providing data protected with a forward error correction code.

82. (Original) A method according to claim 79, comprising transmitting supplementary data to receivers that request data they did not receive in the multicast transmission over point-to-point connections.

83-87. (Cancelled)

88. (Original) A data server, comprising:

an input interface for receiving files to be multicast;

an output interface for providing signals for transmission to receivers; and

a controller adapted to generate a notification on an upcoming multicast transmission responsive to a received file, to provide the notification through the output interface for transmission and to provide the received file for transmission, without receiving acknowledgements from the receivers on whether they received the notification, to determine

receivers designated to receive the multicast transmission that did not receive at least a portion of the data file and to attempt to deliver the data file to the determined receivers.

89. (Currently amended) A mobile station, comprising:
a receiver; and
a processor adapted to tune the receiver to receive data on a plurality of multicast channels, such that on each channel data of a different multimedia type is received, and to combine the data received on the plurality of channels into a single multimedia file.

90. (Cancelled)

91. (Previously presented) A method according to claim 1, wherein determining the receivers that did not receive at least a portion of the data file comprises determining receivers that did not receive the data file at all.

92. (Previously presented) A method according to claim 1 wherein transmitting a data file on the one or more multicast channels comprises transmitting the file data a plurality of times.

93. (Previously presented) A method according to claim 1, wherein transmitting the data file comprises transmitting the file protected with a forward error correction code.

94. (Previously presented) A method according to claim 15, wherein providing the notification message comprises sending a message to a mail-box of the mobile station.

95. (Previously presented) A method according to claim 15, wherein providing the notification message comprises providing in an SMS message.

96. (Previously presented) A method according to claim 1, wherein at least 80% of the designated receivers establish only a single unicast connection related to receiving the data file and transmit only a single request for data.

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97. (Previously presented) A method according to claim 1, wherein the receivers transmit uplink transmissions regarding the multicast transmission only after they collected from the multicast channel all the data from the multicast channel used in reconstruction the multicast transmission.

98. (Previously presented) A method according to claim 19, wherein at least one of the receivers requests the one or more keys from an entity belonging to a different mobile network.

99. (Previously presented) A method according to claim 79, wherein providing the data comprises providing data encoded according to a FEC code.